generating all of said pixel data, representing pixel values of said second digital image signal, in the same manner in accordance with a common algorithm based upon said retrieved class data.

REMARKS

In light of the amendments to the application noted above and remarks to follow, reconsideration and allowance of the above-referenced application are respectfully requested.

Claims 1-38 are pending. Claims 1-14 are the original patent claims and stand unamended. Claims 15-38 are added claims. Claims 15, 19, 23, 27, 30, 33 and 36 are amended herein. Claims 16-18, 20-22, 24-26, 28-29, 31-32, 34-35 and 37-38 stand unamended. Support for the amendment to claims 15, 19, 23, 27, 30, 33 and 36 including the recitation that all of the pixel data are generated in the same manner in accordance with a common algorithm is found at at least column 5, line 42 - column 6, line 36.

At paragraph 6 of the outstanding Office Action, the Examiner has rejected claims 15, 19, 22, 33, 35-36 and 38 under 35 U.S.C. §102(e) as being anticipated by Kanno et al. (U.S. Patent No. 5,229,868). Applicant respectfully traverses the rejection.

As is shown in the whole of Kanno et al., and specifically at Fig. 4, the reference signal including pixels

r_1-r_{16} are input at input image signal terminal 12, and passed through to group 19, including seven bit shift registers 20-26. As is also shown in Fig. 4, and the accompanying description thereof, these reference pixels r_1-r_{16} are forwarded to interpolation data memory 27, which in turn forwards interpolated pixels h1'-h3' to selector 28, which then inserts these pixels as shown in shift registers 23 and 24, by way of example. Upon output of the higher resolution image, both the reference pixels and the interpolated pixels are output, as shown in the functioning of Fig. 4. Thus, for this reason, in the example shown in Fig. 4, reference signal r_6 is shown at output image signal terminal 15. Therefore, in addition to the interpolated data being output, the reference data also is output at the terminal, and in the example as shown in Fig. 4, three interpolated pixels for each reference pixel are output.

While this pass-through of pixel data is acknowledged by the Examiner, the Examiner states that the interpolation circuit of Kanno "generates" all of the pixel data at terminal 15. Applicant disagrees with the Examiner's interpretation of the term "generates", and the application of Kanno to the claimed invention. Applicant has amended independent claims 15, 19, 33 and 36 to recite "means [or a step] for generating all of pixel data, representing pixel values of said second digital image signal, in the same manner in accordance with a common algorithm based upon at least said retrieved class data" (see claim 15).

Thus, it is recited that all of the pixel data representing pixel values of the second digital image be generated in the same manner. This therefore precludes the use of any passed-through reference signals from the original signal being combined with other interpolated data. None of the reference data can therefore be passed through to the output because it will not be generated "in the same manner". Rather, based on the pixel values of the first digital image, all of the pixel values of the second digital image are generated therefrom in the same manner employing a common algorithm and used as output.

As noted above and acknowledged by the Examiner, however, Kanno et al. specifically passes through the reference data to the output along with interpolated data. Therefore, all of the output pixels are not generated in the same manner according to a common algorithm. However, in the claimed invention, this is not the case. Rather, all of the data of the second digital image are interpolated and output in the same manner, this pixel data of the second image being positioned in the second image data. Therefore, because Kanno et al. fails to depict this feature as claimed in the independent claims noted above, Applicant respectfully requests that the rejection of independent claims 15, 19, 33 and 36 under 35 U.S.C. §102(e) be withdrawn.

Furthermore, dependent claims 22, 35 and 38 depend, either directly or indirectly, from one of independent claims 19,

33 or 36, and are therefore allowable as depending from allowable independent base claims. Additionally, each of these claims presents an independently patentable combination in and of its own right, and is therefore patentable for this additional reason. Applicant therefore similarly requests that the rejection of claims 22, 35 and 38 under 35 U.S.C. §102(e) be withdrawn.

At paragraph 8 of the outstanding Office Action, the Examiner has rejected claims 17 and 21 under 35 U.S.C. §103(a) as being unpatentable over Kanno et al. Applicant respectfully traverses the rejection.

Claim 17 depends from independent claim 15, and claim 21 depends from independent claim 19, each argued above as being patentable over Kanno et al. Applicant therefore submits that claims 17 and 21 are similarly allowable as depending from an allowable independent base claim, and additionally as presenting an independently patentable combination in and of their own right. Applicant respectfully requests that the rejection of claims 17 and 21 under 35 U.S.C. §103(a) be withdrawn.

At paragraph 9 of the outstanding Office Action, the Examiner has rejected claims 18, 23, 25, 26, 27, 30 and 32 under 35 U.S.C. §103(a) as being unpatentable over Kanno et al. and further in view of Collins (U.S. Patent No. 4,587,556). Applicant respectfully traverses the rejection.

Independent claims 23, 27 and 30 include limitations similar to those noted above with respect to independent claim 15, specifically that all of the pixel data representing pixel values of the second output digital video signal are generated in a similar manner in accordance with a common algorithm and are therefore based upon at least a retrieved class data, precluding the pass through of reference data as shown in Kanno et al. Because Collins fails to cure this defect of Kanno et al. noted above, Applicant submits that independent claims 23, 27 and 30 are allowable over the combination of prior art relied upon by the Examiner, and therefore respectfully requests that the rejection of claims 23, 27 and 30 under 35 U.S.C. §103(a) be withdrawn.

Furthermore, claims 18, 25, 26 and 32 depend, either directly or indirectly from an independent allowable claim, and are therefore allowable as depending from an allowable independent base claim. Additionally, each of these claims depicts an independently patentable combination in and of its own right. For these reasons, Applicant respectfully requests that the rejection of claims 18, 25, 26 and 32 under 35 U.S.C. §103(a) be withdrawn.

At paragraph 10 of the outstanding Office Action, the Examiner has rejected claims 16, 20, 34 and 37 under 35 U.S.C. §103(a) as being unpatentable over Kanno et al. and further in

view of Tararine et al. (U.S. Patent No. 5,048,102). Applicants respectfully traverse the rejection.

Claims 16, 20, 34 and 37 each depends from one of the independent claims noted above, and therefore is allowable as depending from an allowable independent base claim. Additionally, because Tararine et al. fails to cure the defects noted above with respect to Kanno et al., Applicant submits that each of these claims also presents an independently patentable combination in and of its own right. Applicant therefore respectfully requests that the rejection of claims 16, 20, 34 and 37 under 35 U.S.C. §103(a) be withdrawn.

At paragraph 11 of the outstanding Office Action, the Examiner has rejected claims 24, 28, 29 and 31 under 35 U.S.C. §103 as being unpatentable over Kanno et al. and Collins as applied to claim 23, and further in view of Tararine et al. Applicant respectfully traverses the rejection.

Claims 24, 28, 29 and 31 each depends from an allowable independent base claim, and therefore is allowable for this reason alone. Additionally, because the addition of Collins and Tararine et al. fails to cure the defects of Kanno et al. noted above, Applicant submits that claims 24, 28, 29 and 31 similarly present independently patentable combinations in and of their own right. Applicant therefore respectfully requests that the rejection of claims 24, 28, 29 and 31 under 35 U.S.C. §103(a) be withdrawn.

At paragraph 12 of the outstanding Office Action, the Examiner has rejected claims 15, 17, 19, 21, 22, 33, 35-36 and 38 under 35 U.S.C. §103(a) as being unpatentable over Kanno in view of Matsumura (U.S. Patent No. 5,148,499). Applicant respectfully traverses the rejection.

The Examiner has first relied upon Kanno, citing the reasons noted above. To meet the recitation of generating all pixel data, the Examiner relies on Matsumura to meet an additional interpretation "that the system synthesizes all of the pixel data of the second digital image through computation on the pixel data of the first digital image." Applicant notes that Matsumura depicts two embodiments, one conventional, and one new in Figs. 2 and 4. As is shown at column 1, line 58 - column 2, line 5, Figs. 4A and 4B depict a more conventional apparatus similar to that depicted in Kanno. Specifically, interim data is interpolated, and the original pixel data is passed directly through.

Matsumura then describes that in the first, more conventional embodiment using interpolation at a point positioned at $\delta = 0.50$ gives a poor result. Thereafter, at column 4, lines 3-44, with respect to the second inventive embodiment, it is described that utilization of $\delta = 0.25$ and 0.75 is preferred. Matsumura is specifically directed to an increase in the overall size of an image, and performs simple interpolation using a two-dimensional fourier plane. There is no teaching of increasing

but the effect is an increase in resolution as shown in Fig. 2A → 2B

the resolution of an image. Therefore, Matsumura indeed teaches away from the interpolation of pixels for the purpose of increasing or creating resolution.

Independent claims 15, 19, 33 and 36 recite that the conversion apparatus (or method) is for "converting a first digital image signal to a second digital image signal having a high resolution component" (see claim 15). Therefore, while Kanno teaches the pass-through of only particular data, and Matsumura teaches the generation of all data, Matsumura in fact teaches away from the combination of these two references in that Matsumura is not directed toward the creation or increase of resolution. Applicant therefore respectfully requests that the rejection of independent claims 15, 19, 33 and 36 under 35 U.S.C. §103(a) as being unpatentable over Kanno in view of Matsumura be withdrawn.

no

Furthermore, dependent claims 17, 21, 22, 35 and 38 depend, either directly or indirectly, from one of independent claims 19, 33 or 36, and are therefore allowable as depending from allowable independent base claims. Additionally, each of these claims presents an independently patentable combination in and of its own right, and is therefore patentable for this additional reason. Applicant therefore similarly requests that the rejection of claims 17, 21, 22, 35 and 38 under 35 U.S.C. §102(e) be withdrawn.

At paragraph 13 of the outstanding Office Action, the Examiner has rejected claims 18, 23, 25, 26, 27, 30 and 32 under 35 U.S.C. §103(a) as being unpatentable over Kanno et al. and Matsumura, and further in view of Collins (U.S. Patent No. 4,587,556). Applicant respectfully traverses the rejection.

Independent claims 23, 27 and 30 include limitations similar to those noted above with respect to independent claim 15, specifically that all of the pixel data representing pixel values of the second output digital video signal are generated in a similar manner in accordance with a common algorithm and are therefore based upon at least a retrieved class data, precluding the pass through of reference data as shown in Kanno et al. These claims also recite that a signal is converted from low resolution to high resolution. Because Collins fails to cure the defects of Kanno et al. and Matsumura noted above, Applicant submits that independent claims 23, 27 and 30 are allowable over the combination of prior art relied upon by the Examiner, and therefore respectfully requests that the rejection of claims 23, 27 and 30 under 35 U.S.C. §103(a) be withdrawn.

Furthermore, claims 18, 25, 26, 29 and 32 depend, either directly or indirectly from an independent allowable claim, and are therefore allowable as depending from an allowable independent base claim. Additionally, each of these claims depicts an independently patentable combination in and of its own right. For these reasons, Applicant respectfully requests that

the rejection of claims 18, 25, 26, 29 and 32 under 35 U.S.C. §103(a) be withdrawn.

At paragraph 14 of the outstanding Office Action, the Examiner has rejected claims 16, 20, 34 and 37 under 35 U.S.C. §103(a) as being unpatentable over Kanno et al. and Matsumura and further in view of Tararine et al. (U.S. Patent No. 5,048,102). Applicants respectfully traverse the rejection.

Claims 16, 20, 34 and 37 each depends from one of the independent claims noted above, and therefore is allowable as depending from an allowable independent base claim. Additionally, because Tararine et al. fails to cure the defects noted above with respect to Kanno et al. and Matsumura, Applicant submits that each of these claims also presents an independently patentable combination in and of its own right. Applicant therefore respectfully requests that the rejection of claims 16, 20, 34 and 37 under 35 U.S.C. §103(a) be withdrawn.

At paragraph 15 of the outstanding Office Action, the Examiner has rejected claims 24, 28, 29 and 31 under 35 U.S.C. §103 as being unpatentable over Kanno et al., Matsumura and Collins as applied to claim 23, and further in view of Tararine et al. Applicant respectfully traverses the rejection.

Claims 24, 28, 29 and 31 each depends from an allowable independent base claim, and therefore is allowable for this reason alone. Additionally, because the addition of Collins and Tararine et al. fails to cure the defects of Kanno et al.

noted above, Applicant submits that claims 24, 28, 29 and 31 similarly present independently patentable combinations in and of their own right. Applicant therefore respectfully requests that the rejection of claims 24, 28, 29 and 31 under 35 U.S.C. §103(a) be withdrawn.

Applicant notes with appreciation the notice that claims 1-14 are allowable over the prior art of record. To the extent the Examiner's stated reasons for allowability imply or are construed to mean that the claims are allowable over the prior art of record because the Examiner believes the claims should be interpreted to include one or more features or limitations not recited therein, Applicant's attorney disagrees with such an interpretation. It is the intent of Applicant, by his attorney, to construe the allowed claims so as to cover the invention disclosed in the instant application and all equivalents to which the claimed invention is entitled.

CONCLUSION

Statements appearing above in respect to the disclosures and the cited references represent the present opinion of Applicant's undersigned attorney and, in the event that the Examiner disagrees with any of such opinions, it is respectfully requested that the Examiner specifically indicate those portions of the reference providing a basis for a contrary view.

Applicant has made a diligent effort to place claims 15-38 in condition for allowance, and notice of the allowance of these claims in addition to claims 1-14 is earnestly solicited. If the Examiner is unable to issue a Notice of Allowance regarding these claims, the Examiner is requested to contact the undersigned attorney in order to discuss any further outstanding issues.

Early and favorable consideration is respectfully requested.

Please charge additional fees incurred by reason of this response or credit any overpayment to Deposit Account No. 50-0320.

Respectfully submitted,

FROMMER LAWRENCE & HAUG LLP
Attorneys for Applicant

By: Gordon Kessler

Gordon Kessler
Reg. No. 38,511
Tel. (212) 588-0800